Generic Clearance for CDC/ATSDR

Formative Research and Tool Development

Title: Developing a Framework to Identify and Address Hazards Unique to Women Mine Workers

Supporting Statement B

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Supporting Statement B

1. Respondent Universe and Sampling Methods

The goal of the proposed work is to document the experiences of women mine workers in the U.S. to identify and understand the occupational safety and health (OSH) hazards and risks they face in the workplace when performing job tasks. We are particularly interested in learning about the OSH hazards that are unique to women mine workers, as these may lead to increased health and safety risks.

Using convenience and snowball sampling methods, NIOSH personnel will recruit women mine workers and mine managers and mine health & safety professionals for this study. To reach these populations, the project team will work with existing NIOSH–Industry partnerships, local and regional conferences where eligible individuals are likely to convene will be leveraged to help recruit participants. NIOSH researchers will also recruit subjects through existing professional relationships with mine operators and mine safety and health professionals, as well as through professional and trade association meetings. All participants will be provided with study information and prior to participating, the option of verbal informed consent or to opt-out of participation in the study without fear of reprisal.

The proposed study will involve collecting data from no more than 100 women mine workers and no more than 30 mine operators and mine safety and health professionals working in the U.S. mining industry. Inclusion criteria for women mine workers are that the participant must be working as a miner at a mine site (current position or held position within the last 5 years), can be independent contractor or employee of an independent contractor, and must be 18 years of age or older. Mine operators and mine safety and health professionals must currently be working at a mine and must be 18 years of age or older. For both groups, exclusion criteria include: ability to speak English, scientific workers, workers in administrative roles at a mine site, delivery workers, customers, vendors, visitors, and maintenance or service workers who do not work at a mine site for frequent or extended periods. There are no other inclusion or exclusion criteria. All participants included in the study will participate in small focus groups (4-10 women per group and 4-6 mine operators and mine safety and health professionals per group). All participants will be asked to take a short 5–7-minute paper or electronic survey that asks demographic and work history questions.

2. Procedures for the Collection of Information

The main goal of this information collection is to document the experiences of women mine workers in the U.S. to identify and understand the OSH risks they face in the workplace when performing job tasks. This information will be used to develop a framework for mine operators and health and safety (H&S) professionals to use to guide the planning, designing, or re-designing of the work system (tools, equipment, task, work environment, and organization) to address worker-specific needs. To achieve this goal, qualitative methods will be used.

Participants will take part in focus groups and also complete a short demographic survey. Focus group conversation guides are specific to a participant group, with questions specific for women mine workers included in the guide for women mine workers and questions specific for mine operators and safety professionals in the guide for mine managers and health and safety professionals. Table 1 shows the number of participants anticipated for each participant group. Note that each participant will be asked to

participate in one focus group and complete one demographic survey; the information the participant shares in a focus group will not be connected to their survey response in any way.

Table 1: Number of Participants by Group

Participant	**Data Collection Instrument**	**Number of Participants per Focus Group**	**Total Number of Participants in Study**
Women mine workers	Focus group conversation guide (Attachment B)	10	100
	Demographic and Work History Survey (Attachment D)		
Mine operator and Health and safety professional	Focus group conversation guide (Attachment C)	10	30
	Demographic and Work History Survey (Attachment D)		
Total			**130**

For both women mine workers and mine operators and health and safety professionals, focus groups will occur in locations of convenience for participants. If participants wish to introduce themselves, we will ask them to use a pseudonym to maintain privacy. In addition, participants will be requested to not mention the name of any individuals or name/s of companies. All focus groups will be audio recorded and then transcribed verbatim by an audio transcription service for later analysis. Prior to analysis, project team members will de-identify data of any personally identifiable information. Audio recordings will be destroyed after transcription. Closed captioning will be enabled for virtual focus groups and the auto-generated transcript will be saved and reviewed against the audio file for accuracy. Any artifacts (such as charts, posterboards, virtual white boards, etc. to list tasks, hazards, or solutions) used during the focus groups will also be saved for later thematic analysis. At the conclusion of the focus group discussion, participants will be asked to complete a short Demographic and Work History Survey.

Informed Consent

Informed Consent (see Attachments G and H) will be obtained from all participants in the study. Participants will only verbally indicate consent for participation. Prior to beginning the focus group, all participants will be given the informed consent document (Attachment G for women mine workers, Attachment H for mine managers and H&S professionals) to read and will be asked to verbally indicate consent for participation. Participants will also be given a copy of the informed consent so that they know their rights regarding participation and so that they have information regarding the study and

contact information for the Principal Investigators (PIs) should they have questions after participation. The estimated reading level for the informed consent form for women mine workers (Attachment G) is approximately 10.7 as measured using the Flesch-Kincaid Grade Level test which is a measure of the approximate grade level required to understand the text; the estimated reading level for the informed consent form for mine managers and mine H&S professionals (Attachment H) is approximately 10.8.

Because of the nature of the study, we are requesting a waiver of documentation of informed consent. This waiver is appropriate because of 46.117 c (2): that the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

3. Methods to Maximize Response Rates and Deal with No Response

Concerns about OSH within the mining industry have grown over recent years with mining companies prioritizing identifying ways to improve recruitment and retention of workers. Through participation in mining conferences and relationship building with groups such as Women in Mining USA and the Society of Mining, Metallurgy & Exploration, we anticipate considerable interest from women mine workers in participating. Because women have not previously been the focus of mining OSH research, we believe that being invited to provide feedback and offer solutions on topics that are relevant and important to them.

To maximize response rates, NIOSH researchers will:

- Clearly communicate to participants the purpose of the study, expectations, and future use of findings.
- Emphasize the importance and relevance of participation.
- Offer convenient times and locations for respondents to participate.
- Offer the option of conducting virtual interviews or focus groups.
- Emphasize the importance of participation if the participant refuses the initial approach.
- Ensure all participants understand that data will be kept confidential and will not identify participants.
- Use guides that are designed to be as easy and non-burdensome as possible. This includes ordering the topics in a logical sequence and discussing only those issues that are needed for analysis purposes.
- Ensure the sessions do not exceed the allotted amount of time to minimize the overall burden.

4. Tests of Procedures or Methods to be Undertaken

For this study, NIOSH Mining Program researchers, including those with engineering, epidemiological, behavioral, and behavioral health expertise, internally designed and reviewed the focus group protocols, data collection instruments, and data analysis plan to ensure readability and relevance to the U.S mining industry sector. Data collection guides were informed by previous mining OSH, well-being, and hazard and risk perception research and literature.

Research Instrument

Two focus group guides were developed for this study (Attachments B and C).

Women Mine Workers

The conversation guide (Attachment B) is to be used by the focus group facilitator to explore women mine workers' experiences with different hazards and risks related to minework. The guide is just that, a guide, and will not necessarily be followed verbatim, but serves more as a flexible roadmap for the facilitator. Before beginning a focus group, researchers/facilitators will verbally explain to participants the information included in the informed consent form, reminding them about the potential for discussing sensitive topics and making it clear that they do not have to respond to any question they feel uncomfortable with and may leave the focus group at any time.

NIOSH staff will facilitate focus groups. To begin a focus group session, the facilitator will pose a few brief introductory questions to the group to capture mine site and work history information (e.g., where in the country are you located, what kind of mine do you work at, what's your role). After this brief introduction where participants get an understanding of who is in the room, the group will begin to identify and prioritize a list of job tasks that women miners currently perform or would like to perform but that may pose a hazard or risk to their health and/or safety. Participants will then be asked to share their experiences with these work-related hazards and risks, how they affect or impact their work, whether some hazards preclude women from performing certain job tasks, and how the work system element(s) (e.g., tools, equipment, task, work environment, and organization) can be designed or re-designed to eliminate hazards or make it safer for women to perform the task(s).

Mine Managers and Health and Safety Professionals

The conversation guide (Attachment C) is to be used by the focus group facilitator to explore mine managers' and health and safety professionals' perspectives and experiences with different hazards and risks related to minework. The guide is just that, a guide, and will not necessarily be followed verbatim, but serves more as a roadmap for the facilitator. Before beginning a focus group, researchers/facilitators will verbally explain to participants the information included in the informed consent form, reminding them about the potential for discussing sensitive topics and making it clear that they do not have to respond to any question they feel uncomfortable with and may leave the focus group at any time.

Participants in these focus groups will be asked to provide details about their mine site and their job history and work experience; identify hazards and risks that may be posing additional risk or burden on women mine workers, relevant to the different job tasks performed; and discuss potential mitigation strategies.

Demographic and Work History Survey

The short demographic and work history survey (Attachment D) captures demographic information, such as age, education, race/ethnicity, sex, household income, marital status, and number of dependents; the survey also captures certain work-related information, such as mine site location (state), mined commodity, operation type, job title, number of years in current job/mine, and number of years in mining, overall. Collecting this information is critical as it provides context about study participants. All study participants will complete the same survey.

Data Analysis

Various methods will be used to analyze study data. Qualitative methods, namely thematic analysis, will be used to analyze the focus group data to identify prioritized work tasks and the hazards and solutions associated with each work system element (Braun and Clarke, 2006, Pollard, et al., 2019). Structuring the qualitative analysis around the work system elements will not only yield useful information to design or re-design specific work system elements but provide vital information on interactions that are often neglected. To delineate our approach, the audio recordings from each focus group session will be transcribed after each focus group and each transcript will be assigned two coders to ensure completeness and agreement. Coders will use the qualitative data analysis software program, MAXQDA (NIOSH Level 3 approved) to inductively identify major themes and organize the data. This study will follow the principles of inductive thematic saturation described in Saunders et al. (2018), whereby saturation will be reached when no new themes are identified from the data (see Section 3.4.2). The research team will then interpret the identified themes and ideas in context, comparing and contrasting responses between the women mine workers and the mine managers/H&S professionals. The themes that inductively emerge based on these comparisons will be drafted in detail for publication. Findings will summarize what changes are needed to make mining work systems more supportive for women mine workers while also identifying any discrepancies that exist between the perceptions of women mine workers and those of mine managers and mine H&S professionals in terms of what changes are needed to make the mining work system more supportive for women miners.

The quantitative data collected from all focus group participants via the Demographics and Work History Survey (Attachment D) will be analyzed using statistical software like Stata 18 (StataCorp LLC) or SPSS 26 (IBM Corp) (both Level 2 approved). Demographic and work history information will be collected to accurately describe the study's sample and to place study results in context, highlighting which groups are represented and documenting demographic differences in perspectives or experiences related to the topic of study. Collecting demographic information also helps others replicate results.

5. Individuals Consulted on Statistical Aspects/Individuals Collecting and/or Analyzing Data

This information collection request relies minimally on quantitative analyses and advanced statistical methods will not be used. Instead, qualitative analysis methods will be used. The project team listed in Table 2 has considerable experience using qualitative methodologies and conducting qualitative analyses. If additional assistance or guidance is required regarding data collection, analysis, or management, other internal resources are available through teams within the project staff's branch.

Table 2. Study Personnel

Personnel	Title/Organization	Email	Roles
Casey Stazick, BS	Materials Engineer/SMRD	qvf0@cdc.gov	PI, Focus group guide creation, recruitment and consent, data collection, analysis, and reporting
Brianna Eiter, PhD	Cognitive Psychologist/NIOSH OD	viy3@cdc.gov	PI, Focus group guide creation, recruitment and consent, data collection,

			analysis, and reporting
Zoe Dugdale, MPH	Epidemiologist/ SMRD	nxl4@cdc.gov	Focus group guide creation, recruitment and consent, data collection, analysis, and reporting
Tashina Robinson, MS	Epidemiologist/ SMRD	ngg9@cdc.gov	Recruitment and consent, data collection, analysis, and reporting
Heather Lawson, PhD	Physical Scientist/SMRD	bug4@cdc.gov	Recruitment and consent, data collection, analysis, and reporting
Mahiyar Nasarwanji, PhD	Industrial Engineer/PMRD	wgn8@cdc.gov	Focus group guide creation, recruitment and consent, data collection, analysis, and reporting
Carol Nixon, PhD	Research Health and Evaluation Scientist/SMRD	qlp1@cdc.gov	Focus group guide creation, recruitment and consent, data collection, analysis, and reporting
Cara Halldin, PhD	Deputy Director and Epidemiologist/SMRD	vgx5@cdc.gov	Focus group guide creation, recruitment and consent, data collection, analysis, and reporting